TWENTY-SEVENTH ANNUAL FIELD CONFERENCE

of the Section of

GEOLOGY

OHIO ACADEMY OF SCIENCE

GLACIAL DEPOSITS OF NORTHEASTERN OHIO

April 19, 1952 — George W. White (trip leader)

PLEASE REGISTER FOR TRIP AND NOON LUNCH IN ROOM 104 ARTS BUILDING FRIDAY MORNING

**TIME:** Saturday, April 19, 1952
8:30 AM (SE of Parkman, will need to leave Kent approx. 7:30 AM)

**ASSEMBLE:** At hill top on U.S. 422, 4 miles southeast of Parkman, Ohio.
Line up cars on SE side of hill off pavement and heading NW

**GENERAL ROUTE:** Through Parkman, thence S and W to Hiram. In the afternoon W on 82 through Mantua corners, short N side run thence S to 82 again and continue W to Northfield where trip ends.

**NOON LUNCH:** Hot lunch will be served in Hiram Church at a cost of approx. 75 cents by Ladies Aid, through arrangements by L. C. Pettit. If you wish to take advantage of this Please Indicate That You Wish Lunch Reservations when you sign up for trip on Firday morning.

**MAPS:** Trip route is on U.S. topographic maps, i.e. Garrettsville, Chagrin Falls, and Cleveland quads. Pre-registered party members have been so notified. Two small glacial maps will be distributed by courtesy of Dr. G. W. White.

## ITINERARY

8:30 AM — Meet along highway U.S. 422, 4 miles southeast of Parkman, 2 miles southeast of junction of Rt. 282 with U.S. 422, at top of hill where U.S. 422 crosses the hill on which Kennedy Ledge is located.

Best route from Kent is 5 to Ravenna, 88 to Parkman, thence 422, distance 28 miles.

**Stop 1** — This location is on the margin of Grand River Basin

Discussion of general glacial history.

You are here on "SW corner" of Defiance Moraine in the Grand River lobe. The till exposed is Late Cary, clayey and sparingly pebbly. A measured section is:

| | Thickness ft. | Thickness in. | To Base ft. | To Base in. |
|---|---|---|---|---|
| Horizon 1-A<br>Silty clay loam, light tan..... | 0 | 4 | 0 | 4 |
| Horizon 1-B<br>Clay loam, heavy, light brown..... | 0 | 8 | 1 | 0 |

| | Thickness ft. | Thickness in. | To Base ft. | To Base in. |
|---|---|---|---|---|
| Horizon 2 | | | | |
| Till, brown, much weathered..... | 0 | 5 | 1 | 5 |
| Horizon 3 | | | | |
| Till, brown, noncalcareous..... | 0 | 4 | 1 | 9 |
| Horizon 4 | | | | |
| Till, brown, calcareous, clayey, moderately to sparingly pebbly, cubic fracture, upper 2 feet with many $CaCO_3$ stains..... | 8 | 0 | 9 | 9 |

Note: Horizons 1 and 2 are unusually thin in this measured section, usually they are 12 inches thicker; depth of leaching in auger borings here usually 30-36 inches.

Return to cars and NW on 422 to Parkman. Watch carefully for Rt. 88 to southwest. Turn off U.S. 422. Take Rt. 88 to road fork (west)0.7 miles from Parkman. Outcrop is 200 yards west along this fork. Drivers should turn cars to head back to Rt. 88 -- several turning "spots" may be located on this dirt road -- be carefull; there has been a lot of rain!

Note: Stop 2 has had to be omitted due to high water.

Stop 3 Late Cary till over gravel, which overlies coarse blue till (early Cary or Tazewell) at river level.

Return to cars. Continue along Rt. 88 SW and S approximately 4 miles to junction with Rt. 305. Turn right (west) on 305 and continue 2 miles to east margin of Hiram. Park on W. Side of bridge off side of road.

Stop 4 Margin of Late Cary till. Till exposed in road bank is leached 37 inches. you may wish to collect a piece of this to compare with till at next stop. The section is:

| | Thickness ft. | Thickness in. | To base ft. | To base in. |
|---|---|---|---|---|
| Horizon 1-A | | | | |
| Silty clay loam, brownish gray.... | 0 | 6 | 0 | 6 |
| Silty clay loam, yellow gray..... | 0 | 3 | 0 | 9 |
| Horizon 1-B | | | | |
| Clay loam, very light yellow ..... | 0 | 2 | 0 | 11 |
| Heavy clay loam, yellow..... | 0 | 6 | 1 | 5 |
| Horizon 2 | | | | |
| Till, brown, thoroughly weathered.. | 1 | 4 | 2 | 9 |
| Horizon 3 | | | | |
| Till, brown, noncalcareous (grades into Horizon 2)..... | 0 | 4 | 3 | 1 |
| Horizon 4 | | | | |
| Till, drab brown, calcareous, very sparingly pebbly..... | 3 | 0 | 6 | 1 |

Proceed west on Rt. 82 to point 0.6 mile west of Hiram, 200 yards west of cemetary. Lead car will park just E of dirt road intersection, off pavement on Rt. 82. Others pull in behind lead car.

Stop 5 Exposed in road cut, coarse, sandy, Early Cary till, leached 62 inches.

| | Thickness ft. | in. | To base ft. | in. |
|---|---|---|---|---|
| Horizon 1-A | | | | |
| Loam, brownish gray | 0 | 6 | 0 | 6 |
| Loam, light yellow | 0 | 3 | 0 | 9 |
| Horizon 1-B | | | | |
| Silt loam with some clay, light yellow, darker toward base | 0 | 10 | 1 | 7 |
| Silty clay loam, yellow, slightly mottled with gray | 0 | 6 | 2 | 1 |
| Horizon 2 | | | | |
| Till, noncalcareous, much weathered, yellow-brown | 1 | 6 | 3 | 7 |
| Horizon 3 | | | | |
| Till, noncalcareous, otherwise not much weathered and similar to Horizon 4 | 1 | 7 | 5 | 2 |
| Horizon 4 | | | | |
| Till, calcareous, yellow brown, sandy, pebbly, many cobbles | 3 | 0 | 8 | 2 |

LUNCH

Lunch at Hiram. For those who made reservations, Lunch will be served at Hiram Church, 12 noon. Church is at corner of Rt. 82 and Rt. 700, SW cor. Parking in yard of church and also 100 yards north on Rt. 700 at Hiram College Adm. Bldg.

After lunch assemble along Rt. 82 at W. edge of village off pavement headed west. At Hiram we leave the Grand River lobe Late Cary drift and enter the western side of the Grand River lobe Early Cary drift.

Drive west on Rt. 82, at 2 miles, cross Cuyahoga valley with its valley train terrace (note widening to south) and climb steep slope with thin drift. Continue west on Rt. 82. 1.5 miles west, Mantua Corners enter marginal moraine of west side of Grand River lobe of Early Cary drift. Drift is till at Mantua Corners but becomes more gravelly westward. Two miles west of Mantua Corners and 1 mile west of Mantua Center turn right (north) on gravel road. Drive north for 2 miles thru moderately well developed gravel phase (kame and kettle ) of Early Cary moraine. At crossroad turn left (west) on gravel raod for 200 yards.

Stop 6 Sandy Early Cary till in road cut. (Section follows)

| | Thickness ft. | in. | To Base ft. | in. |
|---|---|---|---|---|
| Horizon 1 | | | | |
| Soil, loamy, brown | 1 | 6 | 1 | 6 |
| Horizon 2 | | | | |
| Till, much weathered, brown | 3 | 0 | 4 | 6 |
| Horizon 3 | | | | |
| Till, noncalcareous, brown, resembles Horizon 4 | 2 | 3 | 6 | 9 |
| Horizon 4 | | | | |
| Till, calcareous, brown sandy to coarse silty, moderately pebbly | 8 | 6 | 15 | 3 |

Note: The depth of leaching here is greater than usual; the depth at Stop 5, 62 inches, is more normal for Early Cary till. The orientation of 90 elongate pebbles varies around S 70 W indicating the ice came from N 70 E, or almost normal to direction of moraine.

Continue west for 500 yards to:

Stop 7

Marginal drift of east side of Late Cary, Cuyahoga sub-lobe of main Erie lobe. Examine Late Cary clayey till in road cut. The Late Cary till, which came from the northwest, is here about 8 feet thick and overlies coarser Early Cary Grand River lobe till which came from the northeast. A section measured here when ditch was new and bank was fresh is:

LATE CARY

| | Thickness ft. | in. | To base ft. | in. |
|---|---|---|---|---|
| Horizon 1-A | | | | |
| Silty loam, grayish brown | 0 | 6 | 0 | 6 |
| Horizon 1-B | | | | |
| Silty clay loam, grayish yellow | 1 | 1 | 1 | 7 |
| Horizons 2 & 3 | | | | |
| Till, silty clayey, very dark yellowish brown (darker 10 YR 4/2) cubic fracture, weathered | 1 | 11 | 3 | 6 |
| Horizon 4 | | | | |
| Till, silt clayey, dark yellowish brown (10 YR 4/2 exactly) sparingly pebbly, strongly calcareous | 3 | 8 | 7 | 2 |
| Mixed zone? | | | | |
| Till, silty clayey, more pebbles than above | 0 | 8 | 7 | 10 |
| EARLY CARY | | | | |
| Till, calcareous, light gray, reduced zone (at other places 1 to 2 inches pebbly sand at this position | 0 | 0.125 | 7 | 10.125 |
| Till, calcareous, yellow brown (10 YR 5/4) coarse silty sand, moderately pebbly) | 2 | 0 | 9 | 10.125 |

The elongate pebbles in the upper, Late Cary, till have an average direction about S 65 E; those in the lower, Early Cary, till about S 70 W, almost exactly as do those of Early Cary till at Stop 6. The Late Cary till is much more clayey and has a very much higher content of black shale peboles.

In the mechanical analyses of samples from this exposure (fresh calcareous till) note the much higher clay content and lower sand content of the Late Cary till as compared to Early Cary Till.

| | Sand | Silt | Clay |
|---|---|---|---|
| 230 A Late Cary | 17 | 42 | 41 |
| 230 B Early Cary | 30 | 45 | 25 |
| 152 Early Cary = Stop 6 | 37 | 45 | 18 |
| Tazewell | 46 | 37 | 17 |

Drive west 0.5 mile to crosroad and turn left (south), 2 miles to Rt. 82 at Silo crossroad. Along this road we are in the Late Cary marginal moraine of the Cuyahoga sub-lobe. Actually, this Late Cary moraine is mainly (or entirely?) a palimpsest structure, the hummocky topography being due to the buried Early Cary Grand River lobe moraine. This situation is clearly shown farther south in Streetsboro and NW Franklin Townships, where Early Cary Grand River gravel kame moraine is exeavated from below a thin covering of Late Cary Cuyahoga lobe till.

Turn right (west) on Rt. 82 for approximately 9 miles to Twinsburg, passing thru Aurora Station and Aurora.

Note: 0.75 mile after rejoining Rt. 82 at Silo, the road cuts thru a hill of coarse gravelly drift of Early Cary Grand River lobe age, which is sticking thru the Late Cary clay till. Many such cases of earlier drift appearing at the surface in the later drift regions are now known.

At Twinsburg, turn left on Rt. 82, cross Rt. 91 go west thru Twinsburg 1.5 miles to top of hill, pull off pavement.

Stop 8 — Glacial striations and grooves are spectacular in several places on top of this hill. The best ones are to the rear of Hill Haven farm, others are buried beneathnew road surface. Proceed 4 miles west on Rt. 82 to 0.75 miles beyond Macedonia to east margin of Northfield.

Stop 9 — Ahead (west) is the Defiance moraine. We are stopped on an outwash plain east of the moraine.

This is the end of the trip. The Ohio Academy of Science, Section C, and your hosts Kent State University wishes to thank Dr. G.W. White and you for helping to make this field conference successful. CNS

Note: Route 8 to Cleveland and Akron lies 0.5 mil ahead. Best route to Wooster and Columbus is ahead 5 miles on 82 to Brecksville, thence US 21 to Rt. 5 at Johnsons Corners (W. Barberton).

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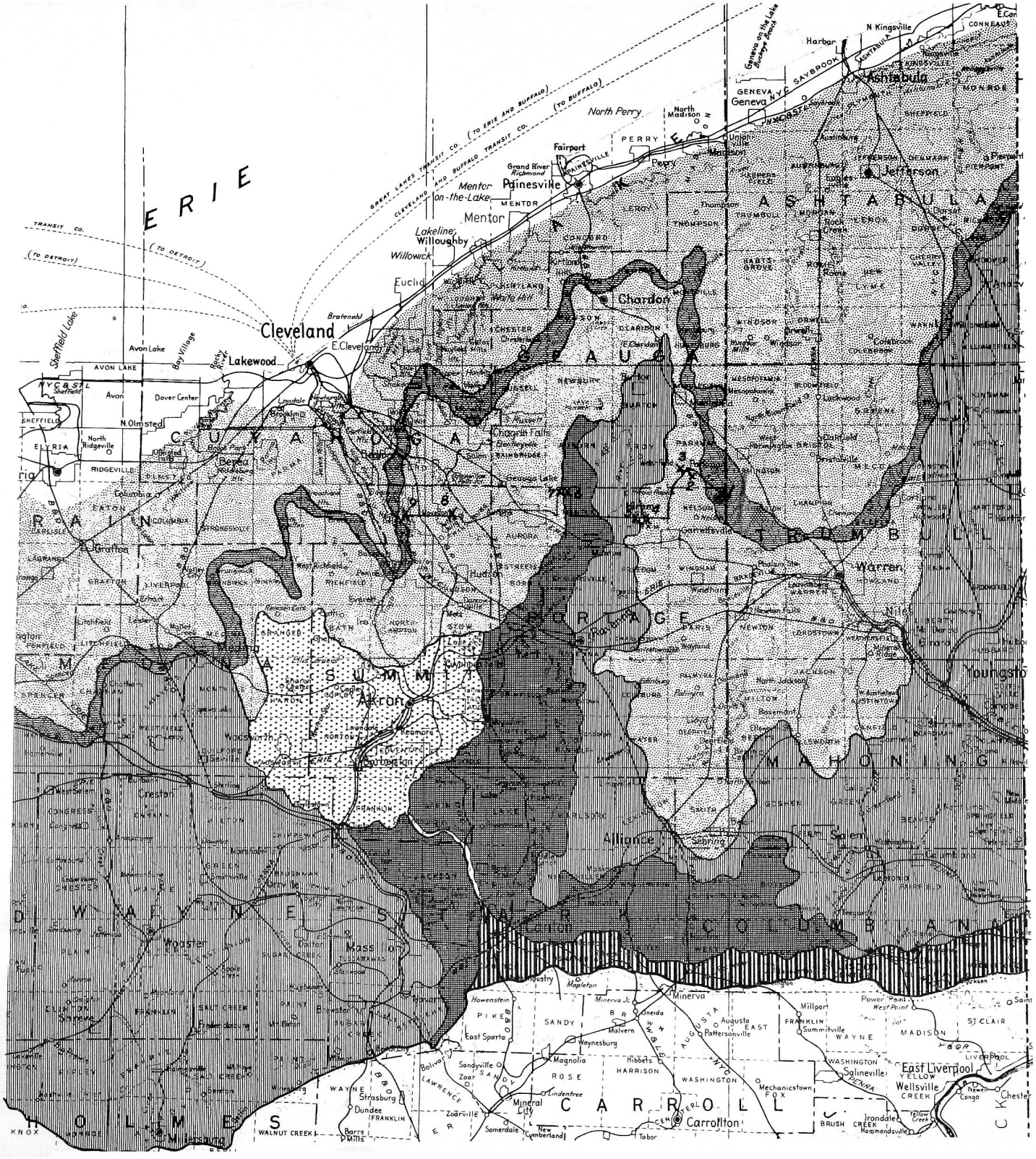



GLACIAL DEPOSITS OF NORTHEASTERN OHIO

G. W. WHITE, 1952

EXPLANATION

WISCONSIN - LATE CARY

**Defiance Moraine.** Hummocky and undulating topography; tight, compact, clayey till.

**Ground Moraine.** Tight, compact, clayey till; at many places less than 20 feet thick.

WISCONSIN - EARLY CARY

**End Moraine.** Hummocky to very hummocky topography. Gravel, or silty to sandy till with much sand and gravel intermixed.

**Ground Moraine.** Flat or gently undulating topography to hilly, bedrock controlled topography. Silty to sandy till.

WISCONSIN - TAZEWELL

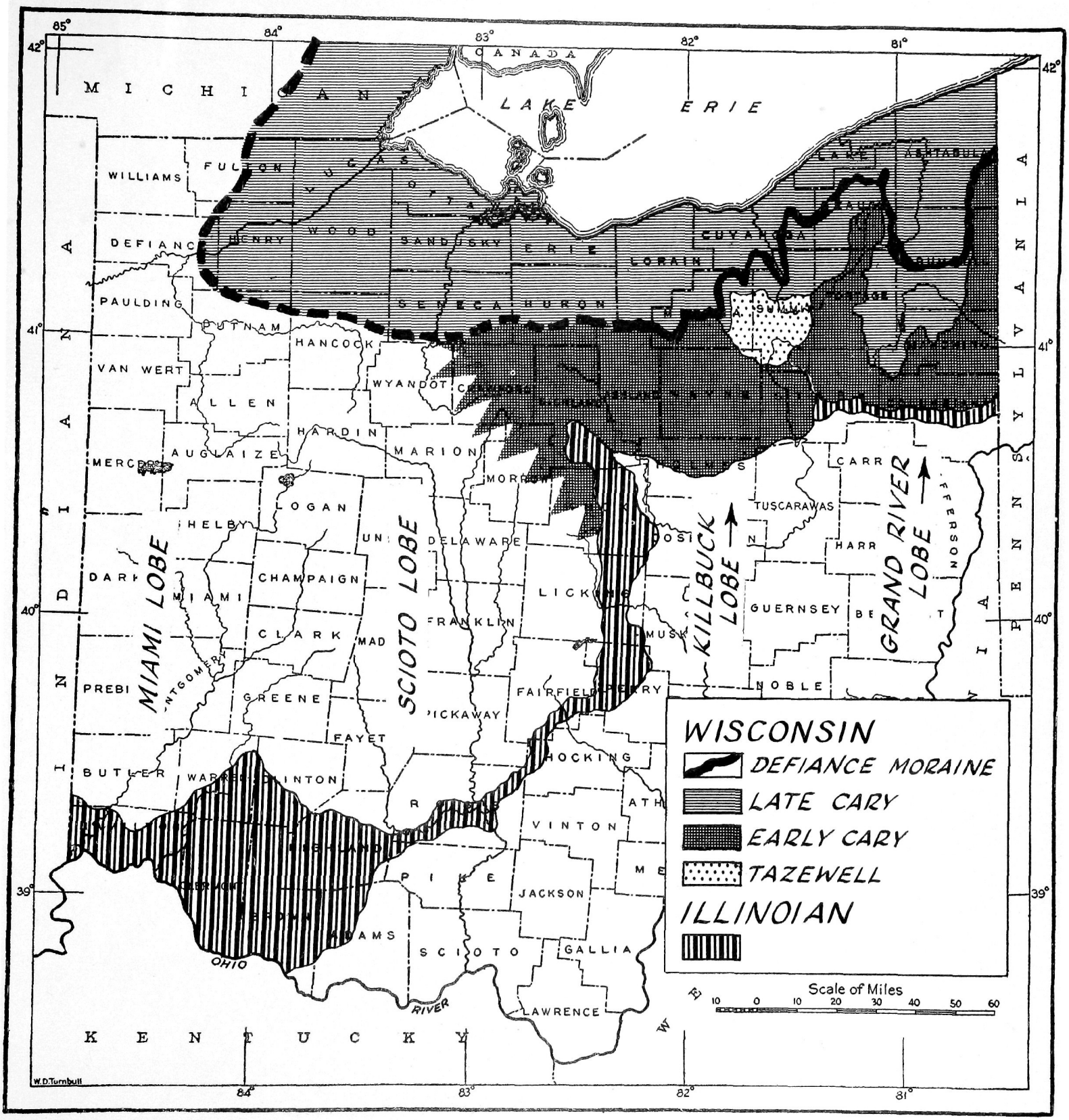
**Ground Moraine.** Gently undulating to hilly bedrock controlled topography. Coarse, stony, sandy till. Includes small areas of gravel.

ILLINOIAN

**Ground Moraine.** Thin drift over bedrock. Mainly coarse till, in part discontinuous.

Note: This map is preliminary and partial, is for field trip purposes, and is not intended for publication.

10 0 10 Miles


MICHIGAN
LAKE ERIE
CANADA
INDIANA
OHIO
PENNSYLVANIA
KENTUCKY
WILLIAMS
FULTON
LUCAS
OTTAWA
DEFIANCE
HENRY
WOOD
SANDUSKY
ERIE
CUYAHOGA
LORAIN
ASHTABULA
PAULDING
PUTNAM
SENECA
HURON
HANCOCK
VAN WERT
WYANDOT
CRAWFORD
ALLEN
HARDIN
MARION
MORROW
AUGLAIZE
MERCER
LOGAN
SHELBY
UNION
DELAWARE
CHAMPAIGN
MIAMI
DARKE
CLARK
MADISON
FRANKLIN
LICKING
PREBLE
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FAYETTE
PICKAWAY
FAIRFIELD
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TUSCARAWAS
CARROLL
HARRISON
GUERNSEY
NOBLE
MUSKINGUM
MIAMI LOBE
SCIOTO LOBE
KILLBUCK LOBE
GRAND RIVER LOBE
WISCONSIN
DEFIANCE MORAINE
LATE CARY
EARLY CARY
TAZEWELL
ILLINOIAN
Scale of Miles
10 0 10 20 30 40 50 60
W.D.Turnbull
85°
84°
83°
82°
81°
42°
41°
40°
39°